UNDERSTANDING PROFITABILITY THROUGH FUNDS TRANSFER PRICING
A GUIDE TO FTP FOR FINANCIAL INSTITUTIONS
Introduction
The Role of Funds Transfer Pricing in Profitability

Funds Transfer Pricing (FTP) is the most essential piece in understanding the profitability of customers, products, organizational units, channels, etc., within a financial institution. Analyzing how the various contributors to net interest margin impact overall profitability leads to more informed and precise decision making regarding product pricing and other key drivers of profitability for the institution.

Unfortunately, many financial institutions have focused on gaining precision in the calculation of the FTP rate, but they fall short in their analytical reporting. Deeper analysis of FTP results can lead to better pricing decisions and allows your institution to get a better handle on the dissection of performance.
INTRODUCTION
An Illustration of Funds Transfer Pricing (FTP)

Imagine a bank that has just two customer transactions originated on the same day - a three-year loan at 4.55% and a six-month CD at 1.15%. The combination of the two transactions results in a net interest margin for the bank of 3.40%. At first blush, it appears that the loan generates 100% of the revenue, and the deposit 100% of the expense. One might come to the conclusion “loans are great and deposits a necessary evil” – now insert FTP. By adding a funds transfer mechanism, specifically an appropriate funds transfer pricing yield curve, a completely different picture as illustrated below emerges.

The inclusion of a transfer pricing curve radically changes the understanding of the makeup of net interest margin and how the bank’s activities have contributed to it. For taking credit risk in the form of a three-year fixed-rate loan, the institution earns a spread of 1.25% above the match-funded point on the curve. For sourcing funds in the local market in the form of a six-month CD, the bank earns a spread of .95%. Essentially the deposit-gathering function is being rewarded for the realized cost savings compared to sourcing the same funding in the wholesale market.

Finally, for taking interest rate risk in the form of a mismatched position, (in this case lending long and funding short) the institution earns 1.20%.

![Diagram](image-url)
INTRODUCTION

An Illustration of Funds Transfer Pricing (FTP)

In the real world, banks and credit unions have potentially millions of transactions in various shapes and sizes created over a long period of time. As such, transfer pricing systems are designed to price each customer record based on the expected cash flows at the time of origination, utilizing the interest rate environment in play at that time. For example, to price the entire balance sheet the institution needs to have all the historic term structures for their selected transfer pricing yield curve going back as far as their oldest asset or liability would require.
4 Key Elements in Measuring and Reporting Funds Transfer Pricing in Banks and Credit Unions

One of the first steps the institution must take in implementing transfer pricing is defining their transfer pricing curve. The curve should represent the institution’s own ability to source funds of various terms on the wholesale market. The LIBOR/Swap Curve is widely used as it represents the credit worthiness of non-governmental entities approximating an A+ rating, which is a good proxy for a healthy bank. Each institution should adjust their transfer pricing curve to reflect their ability to source funds in the market.

The process of deriving an accurate theoretical cost of funds for a loan or an earnings credit for a deposit has evolved over the years. Well-designed FTP systems will transfer price each customer record based on the cash-flow characteristics of the record (e.g., fixed or floating rate, term, cash flows) at the time of origination or the last re-price date. This is typically called a “match-funded” approach. FTP systems should assign a match-funded transfer rate to each principal payment and then amalgamate these individual rates into a single rate based on a time/balance weighted algorithm.
Handling outstanding loan balances and principal payments

Let’s start with an example of a twelve-month amortizing loan with a rate of 4.50% and an outstanding loan balance declining through time due to periodic payments. Each principal payment represents a partial retirement of the overall loan and is transfer priced using the appropriate maturity point on the curve. Since some payments happen early and others later, a weighting factor is applied to each principal payment to accurately take into account the length of time each portion of principal is outstanding. From this process an overall composite transfer rate for the entire loan is calculated – in this case 2.33%. The resulting spread is 2.17% (4.50% - 2.33%), indicating that 217 basis points is needed to cover all the associated costs of originating and servicing this loan as well as the target profit.
Handling outstanding loan balances and principal payments (Continued)

**Challenges to transfer price the balance sheet:**

**Accounting for unscheduled principal payments (“prepayments”)**

Most transfer pricing systems support the ability to enter a prepayment assumption about a particular tranche of loans. As contractual cash flows are projected, additional principal reduction is applied which accelerates the payoff of the loan, thereby shortening the life of the outstanding principal. Each cash flow strip (contractual + prepayment) is transfer priced. An option-adjusted spread (OAS) may be calculated and added to the transfer rate to account for the optionality of the loan.

**Accounts with no defined cash flow structure**

Over the years different approaches to handling these ambiguous accounts such as money market savings accounts have evolved. Some have focused on distinguishing core and volatile portions of these accounts as a means to determining their value. Some have used more advanced statistical methods, studying the behavior of these accounts in different rate cycles to ascertain a mix of funding that best correlates with the account’s historic behavior. A broad body of work is available to enable the institution to become as precise as it desires in determining the theoretical matched rate for all account types on the balance sheet.
Plotting margin against credit score

Typical FTP reporting includes balances, rates, FTP rates, and FTP spread for the portfolio. Just by adding the FICO score to every customer record, you can analyze whether risk based pricing is being implemented by your loan officers. In the example below of the Auto Loan portfolio for the institution, you can easily see the relationship of the FTP spread (on the y-axis) and the credit score (the x-axis). Each dot represents the intersection of an individual loan’s FTP spread and its credit score.

You would expect that the institution would have a higher FTP spread for those loans with a lower credit score. This institution basically has no risk based pricing as there is no measurable distinction between higher/lower credit quality loans. We can see that this institution needs to reevaluate how it is pricing its loans and the lack of correlation between its pricing and its risk.
Plotting margin against credit score (Continued)

Reporting on some key information about the portfolio: its size, weighted average rate, spread and credit score shows the weighted average spread of 5.31%. This rate is strong for the portfolio but the scatterplot trend line highlights a lower correlation between the bank’s pricing and the borrower’s credit rating. A scatterplot of detail provides a visual of the relative relationship between FTP margin and credit score. While the trend line of the data is modestly downward sloping (which one would expect), it is flatter than the risk return profile the bank expects. Recent policy guidelines stipulate a graduated scale for margin targets given the underlying credit risk as measured by the credit score.

Superimposing the bank’s guidelines over the portfolio profile, one can see that numerous loans are priced well below the desired threshold. This is especially true for riskier loans with lower credit scores. The bank wants to attract higher quality borrowers, and this brief analysis indicates they need to enforce stricter guidelines especially in regard to pricing lower quality credits. This analysis suggests that the bank should be more aggressive in attracting higher quality borrowers than they are today. The use of weighted average totals combined with relatively straightforward data visualizations results in some meaningful insights buried in the original flat list of loan records.
Evaluating loan originations by officer

An important analytical tool that is often not fully utilized in transfer pricing is incremental analysis. While there is value in understanding the overall contribution of a portfolio, one quickly realizes the information is not particularly actionable. A portfolio’s overall balance and spread after transfer pricing is the aggregation of all historical lending decisions summed together into one number. Nothing can be done about historic lending decisions that were made in some cases many years prior. Incremental analysis allows the institution to focus on recent activity which is more pertinent. It helps answer the question “What’s happening now?” Focusing on current activity is more actionable as it enables the institution to course correct if necessary. It also provides a good indicator as to whether overall spreads for the portfolio will directionally widen or narrow based on how loans and deposits are being priced today.

Beyond reporting, incremental analysis can be used for other purposes such as incentive compensation. Too often incentive plans are not rightly aligned with the institution’s processes for measuring contribution. Using the loan profitability data by officer, the bank could devise an incentive plan that rewards loan officers for the incremental NII revenue they generate after transfer pricing. Creating the linkage between “how we measure” and “how we reward” ensures that the bank is shaping the behavior of its personnel in alignment with its overall corporate objectives. Some banks have extended this approach to add economic capital and other factors to determine a risk-adjusted return on capital (RAROC) for a period’s activities.
Evaluating loan originations by officer (Continued)

Segmentation by loan officer provides visibility into the contribution being made by loan officers. In this example below, officer WIMK00 led the team with the highest volume of new originations, but he was thirteenth in terms of the spread—the combination of which resulted in a #2 ranking for incremental QTD NII contribution. Detailed data may show that Officer WIMK00 has overly sacrificed spread for the sake of volume. Officer SNSD00 is new to the bank, and although she is building up her pipeline, she generates a higher margin on the few loans she closed during the quarter. The report also highlights that this market has been able to originate and/or re-negotiate terms on existing credits at 64 basis points over the portfolio average. This is a good indicator that the overall contribution from this market should continue to improve. Leveraging this view of the data, management is armed with good information to help coach and manage their loan officers in a way that’s impactful to the bank’s profitability and overall performance moving forward.

![Analyzing Q1 Originations by Officer](image-url)

<table>
<thead>
<tr>
<th>Officer Code</th>
<th>Portfolio Balance</th>
<th>QTD Originations</th>
<th>Ranking</th>
<th>Portfolio Spread</th>
<th>QTD Spread</th>
<th>Ranking Spread</th>
<th>Spread Change</th>
<th>Incremental QTD NII</th>
<th>Ranking Contribution</th>
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<tbody>
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<td>WIMK00</td>
<td>607,535,500</td>
<td>65,294,667</td>
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<td>1.67%</td>
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<td>50,879,494</td>
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<td>LIILO1</td>
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<td>42,803,121</td>
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<td>1.01%</td>
<td>1.89%</td>
<td>12</td>
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<td>COIM01</td>
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<td>9</td>
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<td>3.75%</td>
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<td>N/A</td>
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As of 3/31/2015

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Considering the time dimension

The diagram below displays the three perspectives for analyzing FTP for originated balances/rates (or total portfolio). $T_0$ represents the current time period and is the calculated FTP rate of originated (or total) portfolio. $PP_{1,3}$ represents historical snapshots of previous period results, which will help establish trends of how products have been historically priced. This becomes especially helpful when you add the loan officer dimension and you can analyze pricing consistency through time. $FP_{1,3}$ represents future (prospective) period runoff of the current portfolio, helping understand the impact of maturing spreads on portfolio performance.

Segmenting the Time Dimension

$PP_3$ $PP_2$ $PP_1$ $T_0$ $FP_1$ $FP_2$ $FP_3$

Recent Originations

Project Runoff (maturities, amortization, prepayments)

What’s recently happened?

What’s going to happen next?
Consider the time dimension (Continued)

Three time perspectives to analyze for a more holistic view:

**Current Performance ($T_0$)** - Quickly rank which loan officers have originated the most volumes in the defined time period. It will also rank the average FTP spread and net income effect (balance times spread) that has been booked for those volumes, so management can gain insight to the pricing decisions those officers have made.

**Historical Performance ($PP_{1-x}$)** - Analyze an officer’s historical pricing trends by product for any designated year, comparing them to the overall bank’s FTP spread for the same product. This information will give you a historical perspective how each officer has priced new balances by product and help management understand if underperforming pricing trends are aberrations or an ongoing problem.

**Prospective Performance ($FP_{1-x}$)** - Analyze the principal runoff of the current portfolio for any product and any officer. This assists in the budgeting process in helping to determine new volumes and rates needed to meet targets.
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